

DETAILED ACTION

Claim Objections

1. Claims 2-7, 9, and 11-16 are objected to because they include reference characters which are not enclosed within parentheses.

Reference characters corresponding to elements recited in the detailed description of the drawings and used in conjunction with the recitation of the same element or group of elements in the claims should be enclosed within parentheses so as to avoid confusion with other numbers or characters which may appear in the claims. See MPEP § 608.01(m).

2. Claims 1, 6, 16-23, 28, and 29 are objected to for improper use of the English language.

3. With respect to claim 1, “an intermediate fraction is draw from the gasoline fraction” is improper English.

4. With respect to claim 6, “the aromatic hydrocarbon fraction are fractionated at fractionator 3” is improper English.

5. With respect to claim 16, “the non-aromatic are fractionated at fractionator 4,” “from the overhead of the fractionator 4 are light gasoline,” and “from bottom are diesel fuel fraction” is improper English.

6. With respect to claim 17, “wherein the aromatic hydrocarbon are used as high quality gasoline directly” is improper English.

7. With respect to claim 18, “wherein the high octane number gasoline fraction are blended with the light gasoline fraction” is improper English.

8. With respect to claim 19, "wherein the heavy aromatic hydrocarbon fraction are blended with the diesel fuel fraction" is improper English.
9. With respect to claim 20, "wherein the diesel fuel fraction are blended with the gasoline fraction" is improper English.
10. With respect to claim 21, "wherein the light non-aromatic hydrocarbon fraction are blended with the gasoline fraction" is improper English.
11. With respect to claim 22, "wherein the heavy aromatic hydrocarbon fraction are used as independent products," "the diesel fuel fraction serve as the feed for ethylene after hydrogenated," and "the light non-aromatic hydrocarbon fraction are used as chemical light oils" is improper English.
12. With respect to claim 23, "wherein the high octane number gasoline fraction are blended with the light gasoline fraction and the light non-aromatic hydrocarbons" is improper English.
13. With respect to claim 28, "wherein the water-soluble solvent include a mixed solvent of 2 or more water-soluble solvents" is improper English.
14. With respect to claim 29, "wherein the mixed phase is step 3) is filtered for more than one time before distillation" is improper English.
15. Claims 1, 3, 6, 9, 10, 13-16, 24, and 30-32 are objected to for lack of antecedent basis in the claims.
16. With respect to claim 1, there is insufficient antecedent basis for recitation of "the aromatic fraction and non-aromatic fraction."
17. With respect to claim 3, there is insufficient antecedent basis for recitation of "the overhead temperature," "the outlet temperature," "the diesel fuel," "the temperature of

the side cuts,” “the bottom temperature,” “the overhead pressure,” and “the bottom pressure.”

18. With respect to claim 6, there is insufficient antecedent basis for recitation of “the overhead cut.”

19. With respect to claim 9, there is insufficient antecedent basis for recitation of “the diesel fuel,” “the overhead,” and “the light non-aromatic hydrocarbons.”

20. With respect to claim 10, there is insufficient antecedent basis for recitation of “the aromatic hydrocarbon fraction and non-aromatic hydrocarbon fraction.”

21. With respect to claim 13, there is insufficient antecedent basis for recitation of “the overhead temperature,” “the outlet temperature,” “the diesel fuel,” “the side cut temperature,” “the bottom temperature,” “the overhead pressure,” and “the bottom pressure.”

22. With respect to claim 14, there is insufficient antecedent basis for recitation of “the overhead,” “the diesel fuel,” and “the bottom.”

23. With respect to claim 15, there is insufficient antecedent basis for recitation of “the overhead” and “the bottom.”

24. With respect to claim 16, there is insufficient antecedent basis for recitation of “the overhead.”

25. With respect to claim 24, there is insufficient antecedent basis for recitation of “the water-soluble solvent,” “the regeneration method,” “the lower layer,” “the middle mixed phase,” “the waste heat,” “the regenerated water-soluble solvent,” “the separated water,” and “the recovery water.”

26. With respect to claims 30-32, there is insufficient antecedent basis for recitation of “the filtration separation.”

Claim Rejections - 35 USC § 112

27. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

28. Claims 1, 2, 7, and 10-12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

29. With respect to claim 1, the claim specifies “fractionating a gasoline fraction and a diesel fuel fraction; wherein the gasoline fraction and diesel fuel fraction are combined.” It is not seen how the gasoline and diesel fuel are at the same time “fractionated” and “combined.”

30. With respect to claim 2, it is not seen how “the intermediate fraction is fractionated by adding one or more side cuts at the middle of the fractionator 1.” Specifically, “fractionation” implies a *separation*; whereas the claims provide for “adding” side cuts to the fractionator. It is not seen how “adding” one material to another would result in a separation. The same applies for claims 7, 11, and 12.

31. With respect to claim 10, it is unclear what is meant by “recombine the gasoline fraction and the diesel fuel fraction; an intermediate fraction is drawn between the gasoline fraction and the diesel fuel fraction.”

32. With respect to claim 11, it is unclear what is meant by “the gasoline fraction, diesel fuel fraction and the intermediate fraction are completed[?] at the fractionator 1.”

Claim Rejections - 35 USC § 102

33. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office Action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

34. Claims 1 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Franckowiak (US 5,021,143).

35. With respect to claims 1 and 10, Franckowiak discloses a process comprising: (a) fractionating a catalytically cracked hydrocarbon (3) in a fractionator (4) to separate a gasoline fraction (5) and a diesel fuel fraction (8); (b) withdrawing an intermediate fraction (7); and (c) pumping the intermediate fraction (7) and the gasoline fraction (5) to a solvent extraction unit (16, 19) to separate aromatic hydrocarbons (17, 21) from non-aromatic hydrocarbons (18, 20).

Claim Rejections - 35 USC § 103

36. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office Action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which

said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

37. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

38. Claims 1 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Carter (US 2,773,006).

39. With respect to claims 1 and 10, Carter discloses (a) fractionating a catalytically cracked hydrocarbon (12) in a fractionator (13) to separate a diesel fuel fraction (28); (b) withdrawing an intermediate fraction (15); and (c) pumping the intermediate fraction (15) to a solvent extraction unit (20) to separate aromatic hydrocarbons (30) from non-aromatic hydrocarbons (22).

Carter does not explicitly disclose (in a single embodiment) wherein the catalytically cracked hydrocarbon comprises a combined gasoline fraction and diesel fuel fraction; and wherein the gasoline fraction and diesel fuel fraction are separated in the fractionator.

However, Carter discloses wherein the catalytically cracked hydrocarbon may comprise any of cracked distillates and other feed stocks such as: cracked gasolines, naphtha solvent fractions, and kerosene fractions.

Therefore, Examiner submits that the person having ordinary skill in the art would immediately envision the possibility for using the process of Carter to fractionate a feed comprising a combined gasoline fraction and diesel fuel fraction; and separating a gasoline fraction from the diesel fuel fraction in the fractionator. In this regard, Examiner notes that it is prima facie obvious to *combine* equivalents (gasoline fraction and diesel fuel fraction) known to be (separately) useful for the same purpose (the feed stock being fed to the fractionator in the process of Carter). See MPEP § 2144.06.

Thus, Examiner finds Applicant's claims 1 and 10 unpatentable over the disclosure of Carter.

Allowable Subject Matter

40. Claims 2-9 and 11-32 would be allowable if rewritten to overcome any objections and/or rejections under 35 U.S.C. 112, 2nd paragraph, set forth in this Office Action and to include all of the limitations of the base claim and any intervening claims.

41. The following is Examiner's statement of reasons for allowance:

With respect to claims 2-9 and 11-32, neither Franckowiak nor Carter discloses or otherwise suggests the sequence of process steps and/or the process conditions as specifically claimed by Applicant.

Conclusion

42. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Randy Boyer whose telephone number is (571) 272-

7113. The examiner can normally be reached Monday through Friday from 10:00 A.M. to 7:00 P.M. (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn A. Calderola, can be reached at (571) 272-1444. The fax number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Randy Boyer/

Examiner, Art Unit 1797

/Glenn A Calderola/

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